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NOTICE OF ALLOWANCE AND FEE(S) DUE

27572 7590 10/12/2010

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P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER

SMITH, JOSHUA Y

ART UNIT

PAPER NUMBER

2477

DATE MAILED: 10/12/2010

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/727,360

12/03/2003

Akira Misawa

5259-000037

5505

TITLE OF INVENTION: OVPN SYSTEM, OVPN TERMINATING DEVICE, COLLECTIVE CONTROLLING DEVICE, AND OPTICAL COMMUNICATION NETWORK

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|--------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | NO | \$1510 | \$300 | \$0 | \$1810 | 01/12/2011 |

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

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I. Review the SMALL ENTITY status shown above.

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B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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27572 7590 10/12/2010

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| (Depositor's name) |
| (Signature) |
| (Date) |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/727,360 12/03/2003 Akira Misawa 5259-000037 5505

TITLE OF INVENTION: OVPN SYSTEM, OVPN TERMINATING DEVICE, COLLECTIVE CONTROLLING DEVICE, AND OPTICAL COMMUNICATION NETWORK

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|--------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | NO | \$1510 | \$300 | \$0 | \$1810 | 01/12/2011 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|-----------------|----------|----------------|
| SMITH, JOSHUA Y | 2477 | 370-254000 |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

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Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

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- ☐ A check is enclosed.
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- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/727,360 | 12/03/2003 | Akira Misawa | 5259-000037 | 5505 |
| 27572 | 7590 | 10/12/2010 | EXAMINER | |
| HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303 | | | SMITH, JOSHUA Y | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2477 | |
| DATE MAILED: 10/12/2010 | | | | |

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 965 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 965 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

| | | | |
|-------------------------------|------------------------|---------------------|--|
| Notice of Allowability | Application No. | Applicant(s) | |
| | 10/727,360 | MISAWA ET AL. | |
| | Examiner | Art Unit | |
| | JOSHUA SMITH | 2477 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 07/23/2010.
2. ☒ The allowed claim(s) is/are 1-10,13-15,17-23,26-31,40-45,47-49,51-55,58-60,62,66,67,69,75 and 76; respectively renumbered 1-49.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
|--|--|

/Chirag G Shah/
Supervisory Patent Examiner, Art Unit 2477

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Gregory A. Stobbs on 09/28/2010.

The application has been amended as follows:

1. (Currently Amended) An Optical Virtual Private Network (OVPN) ~~OVPN~~ system comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN (~~Optical Virtual Private Network~~) and a second signal format which is used in the OVPN are different from each other; and

an OVPN terminating device for communicating with the user's device, wherein the OVPN terminating device is provided with:

a registering section from the user's device for a first signal format type which is used in the user's device together with an IP address of the user's device and a VPNID;

a notifying section for notifying contents of the registration to other OVPN terminating device which controls the same VPNID as the user's device;

a retrieving section for the first signal format type which corresponds to the IP address and the VPNID in the user's device according to a calling connection request from the user's device by referring to the information which is registered by the registering section, and

a selecting section for selecting the first signal format which is used by the user's device according to a result in the retrieving section when data is transported from the user's device,

wherein the registering section is provided with a section for registering a port identifier for the user's own device and a port identifier for the OVPN terminating device or an interface identifier which corresponds to at least a first signal format which is used in the user's device together with the IP address of the user's device and the VPNID.

2. (Currently Amended) An Optical Virtual Private Network (OVPN) ~~OVPN~~ terminating device for communicating with a user's device which joins an OVPN comprising:

a port;

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a registering section from the user's device for a first signal format type which is used in the user's device together with an IP address of the user's device and a VPNID;

a notifying section for notifying contents of the registration to other OVPN terminating device which controls the same VPNID as the user's device;

a retrieving section for the first signal format type which corresponds to the IP address and the VPNID in the user's device according to a calling connection request from the user's device by referring to the information which is registered by the registering section, and

a selecting section for selecting the first signal format which is used by the user's device according to a result in the retrieving section when data is transported from the user's device,

wherein the registering section is provided with a section for registering a port identifier for the user's own device and a port identifier for the OVPN terminating device or an interface identifier which corresponds to at least a first signal format which is used in the user's device together with the IP address of the user's device and the VPNID.

3. (Currently Amended) An Optical Virtual Private Network (OVPN) ~~OVPN~~ system comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used

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by a user's device which joins an OVPN (~~Optical Virtual Private Network~~) and a second signal format which is used in the OVPN are different from each other; and

an OVPN terminating device for communicating with the user's device wherein the OVPN terminating device is provided with:

a registering section for registering a first signal format type which is sent from the user's device so as to be used in the user's device together with an IP address of the user's device and a VPNID;

a notifying section for notifying the registered contents to other OVPN terminating device which controls a device which receives a calling connection request when the calling connection request arrives from the user's device;

a selecting section for selecting the first signal format which is used by a user's device which is accommodated by the OVPN terminating device and which is a destination of a calling connection request transmitted from a user's device accommodated by the other OVPN terminating device for communication with the user's device accommodated by the other OVPN terminating device with reference to the registered contents notified from the other OVPN terminating device;

a receiving and selecting section which receives the first signal format type information which is used in the device which receives the calling connection request from the other OVPN terminating device so as to respond to a notice from the notifying section and selects the first signal format type which is used in the user's device according to the format type information.

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4. (Currently Amended) An Optical Virtual Private Network (OVPN) ~~OVPN~~ terminating device for communicating with a user's device which joins an OVPN comprising:

a port;

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a registering section for registering a first signal format type which is sent from the user's device so as to be used in the user's device together with an IP address of the user's device and a VPNID;

a notifying section for notifying the registered contents to other OVPN terminating device which controls a device which receives a calling connection request when the calling connection request arrives from the user's device;

a selecting section for selecting the first signal format which is used by a user's device which is accommodated by the OVPN terminating device and which is a destination of a calling connection request transmitted from a user's device accommodated by the other OVPN terminating device for communication with the user's device accommodated by the other OVPN terminating device with reference to the registered contents notified from the other OVPN terminating device;

a receiving and selecting section which receives the first signal format type information which is used in the device which receives the calling connection request from the other OVPN terminating device so as to respond to a notice from the notifying section and selects the first signal format type which is used in the user's device according to the format type information.

5. (Currently Amended) An Optical Virtual Private Network (OVPN) ~~OVPN~~ system comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN (~~Optical Virtual Private Network~~) and a second signal format which is used in the OVPN are different from each other; and

an OVPN terminating device for communicating with the user's device, wherein the OVPN terminating device is provided with:

a registering section for registering at least a first signal format type which is sent from the user's device so as to be used in the user's device together with an IP address of the user's device and a VPNID;

a notifying and selecting section for notifying the registered contents to other OVPN terminating device which controls the device which receives the calling connection request from the user's device when the calling connection request arrives from the user's device and selecting the first signal format type which can be used in the

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user's device handled between other OVPN terminating device and the own OVPN terminating device commonly according to the registered contents;

a retrieving section which retrieves information indicating a vacancy of the converting section for the alternate converting operation both in the own OVPN terminating device and other OVPN device when the first signal format type which is selected by the selecting section is different from a second signal format type; and

a selecting section which selects at least either one of the converting section for the alternate converting operation which is not occupied for the own OVPN terminating device and other OVPN device according to the retrieving result by the retrieving section.

6. (Currently Amended) An Optical Virtual Private Network (OVPN) ~~OVPN~~ terminating device for communicating with the user's device comprising:

a port;

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN and a second signal format which is used in the OVPN are different from each other;

a registering section for registering at least a first signal format type which is sent from the user's device so as to be used in the user's device together with an IP address of the user's device and a VPNID;

a notifying and selecting section for notifying the registered contents to other OVPN terminating device which controls the device which receives the calling connection request from the user's device when the calling connection request arrives from the user's device and selecting the first signal format type which can be used in the user's device handled between other OVPN terminating device and the own OVPN terminating device commonly according to the registered contents;

a retrieving section which retrieves information indicating a vacancy of the converting section for the alternate converting operation both in the own OVPN terminating device and other OVPN device when the first signal format type which is selected by the selecting section is different from a second signal format type; and

a selecting section which selects at least either one of the converting section for the alternate converting operation which is not occupied for the own OVPN terminating device and other OVPN device according to the retrieving result by the retrieving section.

9. (Currently Amended) An Optical Virtual Private Network (OVPN) OVPN system comprising:

a plurality of OVPN terminating devices which accommodate user's devices and which are not provided with sections for converting a first signal format and a second signal format alternately; and

a plurality of collective converting devices,

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wherein each of the collective converting devices comprises a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN and a second signal format which is used in the OVPN are different from each other, the converting sections being commonly used by the plurality of OVPN terminating devices and

each of the OVPN terminating devices selects a collective ~~the collective~~ converting device which is disposed nearest to each of the OVPN terminating devices, and

if the collective converting device which is disposed nearest to each of the OVPN terminating devices is occupied, each of the OVPN terminating devices selects a next ~~the next~~ nearest collective converting device.

10. (Currently Amended) An optical communication network which is provided with an Optical Virtual Private Network (OVPN) ~~OVPN~~ system according to Claim 9.

13. (Currently Amended) An Optical Virtual Private Network (OVPN) ~~OVPN~~ terminating device for communicating with a user's device which joins an OVPN comprising:

a port;

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a retrieving section for detecting whether or not there is a section for performing the alternate converting operation so as to correspond to the signal format type under condition the first signal format is different from the second signal format when the first signal format type information which is used in the user's device is received;

a generating section for generating an IP address and a VPNID to the user's device when there is a section for performing the alternate converting operation as a result of the retrieving operation by the retrieving section;

a registering section for registering the IP address, the VPNID generated by the generating section, and the first signal format type information which is used by the user's device to which the IP address and the VPNID are added; and

a notifying section for notifying first signal format type information which corresponds to a vacant converting section for performing the alternate converting operation to the user's device when the retrieving result in the retrieving section indicates that there is not a section for performing the alternate converting operation,

wherein in the case in which the user's device is notified of the first signal format type information, if it is possible for the user's device to change the first signal format type to another first signal format type corresponding to the first signal format type

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information, the registration is performed for the other first signal format type, and if it is not possible for the user's device to change the first signal format type to the other first signal format type, the registration is performed for the first signal format type after a certain period of time.

18. (Currently Amended) A base point device which is disposed between the Optical Virtual Private Network (OVPN) ~~OVPN~~ system according to Claim 1 and the user's device which communicates with the OVPN system or with an OVPN terminating device or between the OVPN system according to Claim 1 and the OVPN terminating device comprising:

a port;

a determining section for determining a first signal format type which is used in the user's device;

a transmitting section for transmitting the format type information which is determined by the determining section to the OVPN terminating device; and

a maintaining section for maintaining the generated IP address and the VPNID.

19. (Currently Amended) An Optical Virtual Private Network (OVPN) ~~OVPN~~ system comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used

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by a user's device which joins an OVPN and a second signal format which is used in the OVPN are different from each other;

an OVPN terminating device for communicating with the user's device, wherein the OVPN terminating device is provided with:

a retrieving section for detecting whether or not there are converting sections which correspond to a plurality of the signal format types under condition the first signal format is different from the second signal format when the first signal format type information which is used in the user's device is received;

a generating section for generating a plurality of IP addresses which correspond to a plurality of format types and a VPNID to the user's device when there is a detected converting section for performing the alternate converting operation as a result of the retrieving operation by the retrieving section; and

a registering section for registering the VPNID which is added by the generating section, a plurality of IP addresses, and a plurality of the first signal format type information which are used by the user's device to which the VPNID and a plurality of the IP addresses are added; and

a section for employing a converting section which corresponds to the IP address which is contained in the calling connection request which is transmitted for a communication following the calling connection request by referring to the registering section when the calling connection request arrives from the user's device.

20. (Currently Amended) An Optical Virtual Private Network (OVPN) ~~OVPN~~ terminating device for communicating with a user's device which joins an OVPN comprising:

a port;

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a retrieving section for detecting whether or not there are converting sections which correspond to a plurality of the signal format types under condition the first signal format is different from the second signal format when the first signal format type information which is used in the user's device is received;

a generating section for generating a plurality of IP addresses which correspond to a plurality of format types and a VPNID to the user's device when there is a detected converting section for performing the alternate converting operation as a result of the retrieving operation by the retrieving section; and

a registering section for registering the VPNID which is added by the generating section, a plurality of IP addresses, and a plurality of the first signal format type information which are used by the user's device to which the VPNID and a plurality of the IP addresses are added; and

a section for employing a converting section which correspond to the IP address which is contained in the calling connection request which is transmitted for a communication following the calling connection request by referring to the registering section when the calling connection request arrives from the user's device.

21. (Currently Amended) A base point device which is disposed between the user's device and the Optical Virtual Private Network (OVPN) ~~OVPN~~ system according to Claim 19 which accommodates the user's device or between the user's device and the OVPN terminating device which accommodates the user's device, the base point device comprising:

a port;

a determining section for determining a first signal format type which is used in the user's device;

a transmitting section for transmitting the format type information which is determined by the determining section to the OVPN terminating device; and

a maintaining section for maintaining the plurality of generated IP addresses, the VPNID, and a plurality of the first signal format type information.

27. (Currently Amended) An Optical Virtual Private Network (OVPN) ~~OVPN~~ terminating device for communicating with a user's device which joins an OVPN comprising:

a port;

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a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a detecting section for detecting whether or not the user's device is connected;

a generating section for adding the IP address and the VPNID to the user's device according to a control channel when the retrieving result in the detecting section indicates that the user's device is connected;

a receiving and determining section for receiving at least a test signal which is transmitted via a data channel by using the IP address from the user's device and determining at least the first signal format type which belongs to the user's device;

a retrieving section for retrieving whether or not there is a converting section for performing the alternate converting operation so as to correspond to the format type according to the determining result by the determining section when the first signal format type which is used by the user's device is different from the second signal format type; and

a registering section for registering the IP address and the VPNID which are added by the generating section, and the first signal format type information which is determined by the determining section which is used by the user's device to which the VPNID and the IP address are added when the retrieving result by the retrieving section

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indicates that there is a converting section for performing the alternate converting operation.

30. (Currently Amended) A base point device which is disposed between the Optical Virtual Private Network (OVPN) ~~OVPN~~ terminating device according to Claim 27 and the user's device which communicates with the OVPN terminating device comprising:

a port;

a detecting section for detecting whether or not the user's device is connected to the base point device;

a receiving and maintaining section for receiving the IP address and the VPNID which are added to the base point device via the control channel from the OVPN terminating device; and

a transmitting section for transmitting the test signal for at least the first signal format which is used by the user's device to the OVPN terminating device via the data channel after the IP address and the VPNID are added to the base point device.

43. (Currently Amended) An Optical Virtual Private Network (OVPN) ~~OVPN~~ system comprising:

a plurality of optical cross connecting devices; and

a plurality of collective converting devices,

wherein each of the collective converting devices comprises:

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a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format in a layer 1 which is employed in a user's device which joins an OVPN and a second signal format which is utilized in an upper layer than the layer 1 which is employed in the OVPN alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and the second signal format which is used in the OVPN are different from each other and

the converting section for performing the alternate converting operation is provided with:

a transmitting section for transmitting the first signal format which is transmitted from the user's device to the OVPN by encapsulating the first signal format by the second signal format; and a transmitting section for transmitting the encapsulated signal which is encapsulated by the second signal format which is transmitted from the OVPN to the user's device by de-encapsulating to the first signal format, and

the converting sections are commonly used by the plurality of optical cross connecting devices, and

each of the optical cross connecting devices selects the collective converting device which is disposed nearest to each of the optical cross connecting devices.

47. (Currently Amended) An optical communication network which is provided with an Optical Virtual Private Network (OVPN) ~~OVPN~~ system according to Claim 43.

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49. (Currently Amended) An Optical Virtual Private Network (OVPN) ~~OVPN~~ terminating device for communicating with a user's device which joins an OVPN comprising:

a port;

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a receiving and transmitting section for receiving a notice that the user's device is connected to a base point device via the control channel from the base point device which is disposed between the user's device and the OVPN and transmitting the IP address and the VPNID which are allocated to the user's device to the base point device;

a receiving section for receiving a receipt confirmation for the IP address and the VPNID which are transmitted by the receiving and transmitting section; and

a transmitting section for transmitting a final connection confirmation for notifying the receipt of the receipt confirmation by the receiving section to the base point device.

53. (Currently Amended) A base point device which is disposed between the Optical Virtual Private Network (OVPN) ~~OVPN~~ terminating device according to Claim 49 and a user's device which communicates with the OVPN terminating device comprising:

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a port;

a detecting section for detecting whether or not the user's device is connected to the base point device;

a notifying section for notifying at least one of the OVPN terminating device via the control channel that it is detected that the user's device is connected to the base point device;

a receiving section for receiving the IP address and the VPNID which are allocated to the user's device from the OVPN terminating device via the control channel;

a transmitting section for transmitting a receipt confirmation that the receiving section received the IP address and the VPNID to the OVPN terminating device; and

a transmitting section the first signal format type information which is used by the user's device, the IP address, and the VPNID to the OVPN terminating device which received the final connection receipt for the receipt confirmation via the control channel.

58. (Currently Amended) A base point device which is disposed between an Optical Virtual Private Network (OVPN) ~~OVPN~~ and a user's device comprising:

a port;

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a multiplying and transmitting section for multiplying and transmitting a plurality of optical wavelength signals which are used in a plurality of the user's devices to the OVPN;

a separating and transmitting section for separating and transmitting the multiplied optical wavelength signals which arrive from the OVPN to the user's devices; and

a notifying section for notifying the OVPN of wavelength information and information for the wavelengths which are transmitted under a multiplied condition so as to be used in the user's devices.

59. (Currently Amended) An Optical Virtual Private Network (OVPN) ~~OVPN~~ terminating device for communicating with the user's device via the base point device according to Claim 58 comprising:

a port;

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a multiplying and transmitting section for multiplying and transmitting a plurality of optical wavelength signals which are used in the user's device to the OVPN; and

a separating and transmitting section for separating and transmitting the multiplied optical wavelength signals which arrive from the base point device so as to transmit to a predetermined course according to information which is notified from the notifying section.

60. (Currently Amended) An Optical Virtual Private Network (OVPN) ~~OVPN~~ system comprising:

a base point device which is disposed between an OVPN and a user's device;
and

an OVPN terminating device which communicates with the user's device via the base point device,

wherein the base point device comprises:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a converting and transmitting section for converting a serial signal which is transmitted from the user's device into a plurality of parallel signals so as to transmit to the OVPN;

a converting and transmitting section for converting a plurality of the parallel signals which arrive from the OVPN into a serial signal so as to transmit to the user's device; and

a notifying section for notifying the OVPN of information for the topology of the parallel signals and information that the serial signals are converted to the parallel signals, and

the OVPN terminating device comprises:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other; and

an inputting section for inputting the parallel signals which are divided from a series of serial signals into the plurality of converting sections for performing the alternate converting operation so as to correspond to the first signal format type information according to the information which is notified from the notifying section in the base point device.

62. (Currently Amended) An Optical Virtual Private Network (OVPN) OVPN system comprising:

a base point device which is disposed between an OVPN and a user's device; and

an OVPN terminating device which communicates with the user's device via the base point device,

wherein the base point device comprises:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a multiplying and transmitting section for multiplying the parallel signal which is converted from the serial signal which is transmitted from the user's device so as to transmit to the OVPN;

a separating and transmitting section for separating the multiplied wavelength signals which arrive from the OVPN into the parallel signals and converting the parallel signals into the serial signals so as to transmit to the user's device; and

a notifying section for notifying the OVPN of the information that the serial signals are converted to the parallel signals, the information for a topology of the parallel signals, and the information that the parallel signals are transmitted under wavelength-multiplied condition, and

the OVPN terminating device comprises:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used

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by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a multiplying and transmitting section for multiplying the parallel signals which arrive from the OVPN so as to transmit to the base point device;

a separating and transmitting section for separating the multiplied optical wavelength signals which arrive from the base point device so as to transmit to the OVPN as the parallel signals; and

an inputting section for inputting the parallel signals which are divided from the multiplied wavelength signals into the plurality of converting sections for performing the alternate converting operation so as to correspond to the first signal format type information according to the information which is notified from the notifying section in the base point device.

69. (Currently Amended) An optical communication network which is provided with an Optical Virtual Private Network (OVPN) ~~OVPN~~ terminating device according to any one of Claims 2, 13, 27, 49, and 59.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA SMITH whose telephone number is 571-270-1826. The examiner can normally be reached on Monday-Friday, 10:30am-7pm, EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chirag Shah can be reached on 571-272-3144. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Joshua Smith
/J.S./
Patent Examiner
09-28-2010

/Chirag G Shah/
Supervisory Patent Examiner, Art Unit 2477